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ABSTRACT

Following up a 1987 study that had identified 1,169 entrepreneurial graduates of Minnesota's technical institutes from the 10-year time period prior to 1984, a study was conducted to determine how Minnesota's technical institutes presently promote entrepreneurial competence for their students and how they can help future students. Questionnaires were sent to the 1,169 identified entrepreneurs, and usable responses were received from 361. Among the findings were the following: (1) the 361 respondents came from 71 different vocational programs--with concentrations in the areas of agricultural, marketing/management, industrial trades, and service areas; (2) the entrepreneurs' business operations were relatively small, averaging about five employees; (3) types of businesses were mainly service oriented, but included agricultural, retail, construction, wholesale, and manufacturing; and (4) five key business management competency areas rated as their top instructional interests by the business owners were management of capital/cash flow, use of computers, business planning, marketing skills, and accounting tax procedures. Recommendations were made to emphasize these five competency areas in small business and entrepreneurial education programs, to emphasize business management skills in various curriculum areas, and to promote the involvement of vocational program instructors in business management initiatives in all program areas. (Appendices include the questionnaire, respondents' comments, 22 tables, and 44 references.) (KC)

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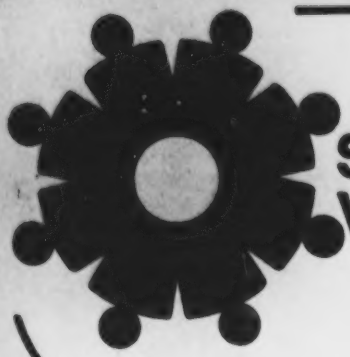

State Council on
Vocational Technical Education
STATE OF MINNESOTA

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Developing Entrepreneurial Competence Among Minnesota's Technical Institute Students

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EXECUTIVE SUMMARY

Developing entrepreneurial competence for students in vocational technical education is seen as a relatively new strategy. Why should this be done? To start more businesses? To foster local economic development? To assess career opportunities for potential entrepreneurs? To help students achieve a greater understanding of their role in the workplace? To help students demonstrate their creativity through a business idea? To help provide higher-order thinking skills that are being demanded more and more in the workplace? All these questions can be answered "yes." They can all serve as benefits of entrepreneurial education and small business assistance.

Since 1970, the United States has seen a dramatic increase in the number of small businesses. Fortune 500 companies have lost four to six million jobs while overall employment has increased by 20 to 24 million jobs (Drucker 1985). This growth has been a hot topic of debate and study ever since. Three factors, attributed to employee cutbacks by large corporations, include: (a) increased foreign competition, (b) slower rate of economic growth, and (c) heavy debt burdens following mergers and takeovers (Bennett 1987). Other factors could include a shift to a more service-oriented economy, new technologies, or a new wave of worker independence. Whatever the reasons for small business growth, the numbers are growing and are predicted to grow in the future.

The small business growth has led to a large number of small business failures. A lack of the necessary business management skills, or entrepreneurial competence, is often cited as the primary reason for the closing of a small business. Providing small business management education is an economic development strategy that many feel can help provide the missing ingredient small business owners need to succeed. Approximately $3 to $10 million is spent on this strategy each year in Minnesota (Governor's Rural Development Council 1987).

There have been numerous studies that have identified various business management skills needed most by small businesses (Peterson 1984; St. John Nelson 1983; Wickman 1983). Furthermore, a model for lifelong entrepreneurship education that focuses on a sequential order for development of basic business management skills and knowledge has been developed by the National Center for

Research in Vocational Education (1984). There are also many public and private agencies and educational institutions that provide a complete array of small business assistance, including the small business management programs of Minnesota technical institutes. Yet no study has identified the basic business management skills specifically needed most by entrepreneurial graduates of Minnesota's technical institutes.

Furthermore, studies have shown that education and training of potential and existing entrepreneurs have a positive relationship on new business starts, increased profits, and attitudes towards the education received (Chrisman, Nelson, Hoy and Robinson 1985; Clark, Davis, and Harnish 1984; Coulton 1978; Hornaday and Vesper 1981; Soloman and Weaver 1983; Minnesota Small Business Development Centers 1986). Still there is a continuous debate about teaching entrepreneurial skills if one claims entrepreneurs are "born, not made." While there is no conclusive evidence that says entrepreneurs are more successful if they receive business management education, there are strong indications that this type of education will produce more and better entrepreneurs than in the past (Ronstadt 1985).

In 1987, a State Council on Vocational Technical Education study identified 1,169 entrepreneurial graduates of Minnesota's technical institutes from the ten-year time period prior to 1984. The purpose of this study was to determine if entrepreneurs come from vocational technical education and what kind of entrepreneurs they were. While data revealed significant findings, many more questions were left unanswered concerning how Minnesota's technical institutes presently help develop entrepreneurial competence for their students and how they possibly can help future students.

The Council decided to follow up the initial study to answer these questions and many more. A questionnaire was developed and sent to all of the entrepreneurial graduates identified in the Council's original study.

The following conclusions can be made from the findings of the Council's follow-up survey on entrepreneurial graduates from Minnesota's technical institutes from the ten-year time period prior to 1984.

* The 361 graduates identified who initiated their own business came from a total of 71 different vocational programs. They were categorized into four primary vocational program groups. These groups are (a) agricultural (15 percent), (b) marketing/management (11 percent), (c) industrial trades (52 percent), and (d) service areas (22 percent). This compares with the 1987 enrollments for these program groups which were (a) agricultural (3 percent), (b) marketing /management (8 percent), (c) industrial trades (47 percent), and (d) service areas (42 percent).

* Their business operations are relatively small, averaging 4.9 total employees (2.6 full-time and 2.3 part-time). This compares to a 1986 Minnesota statewide average of 15.2 total employees per business establishment.

* Almost 90 percent of the graduates' businesses had fewer than 10 employees. In 1986, 74 percent of all establishments in Minnesota had fewer than 10 employees.

* Their types of business were mainly service-oriented (48 percent). Other business types include agriculutral (17 percent), retail (14 percent), construction (12 percent), wholesale (4 percent), and manufacturing (3 percent). This compares to a 1986 Minnesota statewide average for business types: service (29 percent), agricultural (2 percent), retail (25 percent), construction (11 percent), wholesale (11 percent), and manufacturing (7 percent).

* Five key business management competency areas were rated by the entrepreneurial graduates as their top instructional interests. The graduates also rated these areas as their biggest business operation problems. Over 22 percent of all the graduates were "very much interested" in more education in the following five management areas:

  (a) managing capital/cash flow;
  (b) using computers;
  (c) business planning;
  (d) marketing skills such as pricing, advertising, and selling; and
  (e) accounting tax procedures.

* Agricultural graduates expressed more instructional interest in financially related management areas.

* Marketing/management graduates expressed more instructional interest in marketing-related management areas.

* The same five business management competency areas listed above were perceived by the graduates to have a strong benefit for increasing the amount of instruction in their vocational programs. Over 48 percent of the graduates felt there would be "very much benefit" if they had more instruction for their program in the five key management areas listed above.

* Assistance to start and maintain the graduates' operations came primarily from banks (61 percent), friends and family (57 percent), accountants (54 percent), lawyers (41 percent), and business associates (34 percent). Vocational instructors (27 percent), programs with business management curricula (15 percent), and the technical institutes' small business management programs (10 percent) were perceived as assisting the graduates to a lesser extent. Agricultural and marketing/management graduates received more business management education assistance due to more specific management education objectives in programs such as farm operations management and supermarket management.

Recommendations

The State Council on Vocational Technical Education made four recommendations to the State Board of Vocational Technical Education and the State Board of Education based on this study. The recommendations, together with their rationales, appear in the discussion that follows:

Recommendation One: Emphasize (a) business planning, (b) computer applications, (c) managing capital/cash flow, (d) marketing skills, and (e) accounting skills in the small business management programs and other entrepreneurial education initiatives across all vocational program areas.

Rationale: Graduates across all program areas consistently indicated these skills as (a) having the greatest potential benefit for increasing instruction in their vocational program, (b) being the most problematic management competencies in their businesses, and (c) being the most likely to produce further enrollment in technical institute courses. Since the respondents' businesses were relatively small--90 percent had ten or fewer employees, and over one-third had no employees--graduates may be too busy "running the business" to find time for areas such as business planning. Also, nearly 60 percent of the graduates saw "no major changes" in the next five years of their businesses, possibly suggesting little thought for business planning ideas.

Emphasizing potential computer applications is unique when compared to the graduates' ranking it (a) last in importance, (b) tenth in perceived benefit for increasing instruction in their programs, and (c) ninth in being a business problem. In other words, graduates may be saying that computers are not currently necessary in their operations but they see an opportunity further on in their careers.

The graduates indicated a lesser need for skills such as determining insurance needs, government reporting regulations, and locating professional assistance, sales forecasting, and analyzing competition. Overall, these five skills were the lowest ranked business management problem areas and had the least instructional interest. This may be due to the smaller businesses started by the graduates and the fact that over 60 percent of the businesses were located in communities of fewer than 10,000 people.

Recommendation Two: A separate analysis of individual program areas produced three separate curriculum recommendations. First, for agricultural programs, emphasize (a) accounting tax procedures and (b) securing financial assistance.

Rationale: Agricultural graduates indicated a significantly larger benefit of increasing instruction in these financially-related skills in their programs than the other three program areas. The graduates also indicated their program addressed these same skills more frequently than the other program areas. These results seem to say that even though agricultural programs are covering these financial areas, possibly they should do more. For example, nearly 96 percent of the agricultural graduates indicated their program required at least some instruction in managing capital/cash flow, while 76 percent perceived "very much benefit" for increasing instruction in their program.

The higher concern for financially-related skills also can be seen in the fact that agricultural graduates are more likley to obtain financing after establishing their businesses. Eighty percent of the graduates secured financial assistance after operations were starting, compared to 62 percent overall. Also, agricultural graduates had the highest amount of financial assistance from government loans. Thirteen percent of the graduates' financing sources to establish their businesses came from government loans compared to two percent overall.

Second, for marketing/management programs emphasize business management instruction in (a) analyzing competition, (b) identifying potential customers, and (c) motivating/compensating personnel.

Rationale: Marketing/management graduates indicated a significantly larger benefit of increasing instruction in these marketing- and management-related skills in their programs. The graduates also indicated that their programs addressed these same skills more frequently than other program areas. These results seem to say that even though marketing/management programs are covering these marketing an management skill areas, possibly they should do more. For example, nearly 96 percent of the graduates indicated marketing skills such as pricing, advertising, and selling were required in their vocational program, while 72 percent perceived "very much benefit" for increasing instruction for their program.

The higher concern for marketing and management skills may be due to marketing/management graduates having businesses with more employees. They averaged a total of 15 part- and full-time employees compared to five total employees overall. Therefore, these graduates may have more customers and competitors and be in greater need of marketing and management assistance.

Third, for industrial trade and service area programs explore business management curriculum or other related business strategies that could be developed by the technical institutes' small business management extension program. Possible strategies might include (a) a separate business mangement course that can be offered as an elective or requirement, (b) curriculum strategies that integrate business management with program skill training and (c) guest lecturing by small business management instructors.

Rationale: Industrial trades and services area program graduates received significantly less business management instruction than graduates of the other program areas. Over 80 percent of the industrial trade and service area graduates indicated their vocational program did not provide any business management assistance to start and maintain their businesses. Still, these graduates perceived the same benefit for increasing instruction in business management skill areas as did agricultural and marketing/management graduates, who received significantly more business management education. For example, 90 percent of industrial trade and service area graduates perceive "very much benefit" or "some benefit" for increasing instruction in business planning in their programs. This compares very closely with the 93 percent of agricultural and marketing/management graduates who perceive "very much benefit" or "some benefit" for increasing instruction in their programs.

In addition, a survey by the State Board on Vocational Technical Education (1987) found business management curriculum in programs such as telephone service, mobile communications, optical technology, electronics, appliance repair, and cosmetology. Approximately 12 percent of the teachers surveyed indicated they taught some business management areas. Almost 60 percent of the teachers indicated they were interested in obtaining information relating to entrepreneurship education.

Also, integrating business management curriculum in industrial trade and service area programs can be a part of the push for general education that includes basic skills and communication skills.

This recommendation is not designed soley for the purpose of enabling vocational students to start more businesses, although that benefit should not be ignored. Besides producing future entrepreneurs, business management education can promote:

* an understanding of their employers' business management problems;

* creation of higher-order thinking skills, which include problem solving, critical thinking, analysis, synthesis, interpretation, and evaluation skills;

* alternatives to unemployment if jobs in their field are scarce; and

* a motivating element for risk-taking, innovative students.

One industrial trade program graduate offered this view on developing business management education in the industrial trade programs:

> Basic business management should be a required subject in every trade course taught. This is not necessary just for future employers, but also to produce a more profitable employee. A successful business is one that everybody is fully aware of and understands the meaning of overhead and profit.

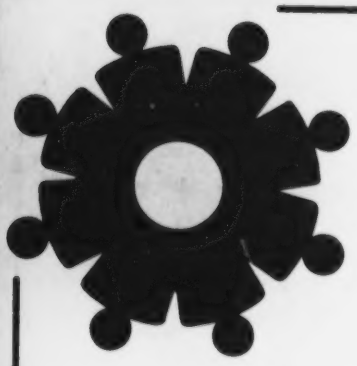
Recommendation Three: Promote the involvement of vocational program instructors in any business management instruction initiatives across all program areas.

Rationale: Collectively, over 25 percent of the graduates indicated that vocational instructors were utilized for assistance to start and maintain their business. This professional assistance was used more than the technical institutes' small business management programs or any business management curricula taught in their program. Entrepreneurs prefer one-on-one counseling to formal educational programs in assisting their business start (Ibrahim and Goodwin 1986). One marketing/management graduate said: "I consider the vocational instructors as some of the most motivated and helpful people I ever met." However, a few respondents indicated their instructor was not so willing to lend a helping hand. Said one industrial trade graduate; "The instructor only discouraged us from going into business by ourselves."

Recommendation Four: Emphasize opportunities for entrepreneurship education strategies to meet the special needs of targeted populations and to promote vocational equity for all students.

Rationale: Only two percent, or seven graduates, were from a racial minority. In 1987, the Minnesota Technical Institute System has approximately a ten percent racial minority enrollment. Nationally, research has shown that racial minority groups have lower business formation rates with less than 5 percent of all businesses minority-owned.

Sixteen percent of the graduates were female. Currently, the technical institute system has approximately a 42 percent female enrollment. This compares to national research which shows that in 1984 women own 26 percent of all small businesses, up from 4.5 percent in 1972. The percentage of women who are choosing self-employment is five times the rate of men.



CHAPTER I

BACKGROUND AND REVIEW OF THE LITERATURE

Developing entrepreneurial competence for students in vocational programs and providing management assistance to small business owners is a relatively new strategy for vocational technical education in Minnesota. It has grown out of the recent rise in the number of small businesses being started across America. Along with these business starts come business failures. Many claim that the number one reason for small business failure is poor or inadequate management. Vocational technical education has developed various programs to help address the need for business management assistance.

Providing Entrepreneurship Assistance through Vocational Technical Education

Since 1972, the Minnesota Technical Institute System has provided farm and small business management programs to assist local owners and farmers in efficiently managing their business operations. Persons (1976) concluded that the small business curriculum provided ample evidence of a positive benefit-cost return for the individual and the community. It was recommended that individual business owners and potential entrepreneurs seek enrollment in these programs.

Ten of the 23 small business management programs have pooled their resources with the Small Business Development Centers (SBDC) which are run by the United States Small Business Administration (SBA). These cooperative efforts are viewed as models for replication in communities with similar resources (Minnesota Governor's Council 1984). Also, the Minnesota Lieutenant Governor's Task Force on Entrepreneurship (1987) called for continued support for the technical institute's farm and small business management programs.

The Small Business Development Centers (SBDC) in Minnesota (1986) surveyed the impact of their small business development assistance on small businesses statewide between 1983 and 1984. With an average of 43 hours of assistance

time for each business, the results showed that (a) 75 percent of all businesses felt SBDC services were helpful, (b) full-time employment increased an average of 16.5 percent, and (c) net profits increased an average of 37.5 percent.

The Minnesota Governor's Rural Development Council (1987) concluded that the technical institutes' small business management program has a strong client satisfaction level. Still, the report adds, there is an untapped market of potential entrepreneurs that may need to learn about the career options of becoming an entrepreneur.

In addition to providing farm and small business management assistance, vocational technical education in Minnesota offers many examples of integrating business management education within various vocational programs. A survey by the State Board on Vocational Technical Education (1987) found business management curriculum in programs such as telephone service, mobile communications, optical technology, electronics, appliance repair, and cosmetology. Approximately 12 percent of the teachers surveyed indicated they taught some business management areas. Almost 60 percent of the teachers indicated they were interested in obtaining information relating to entrepreneurship education.

The State Board of Vocational Technical Education recently developed a new course called Business Plan Development as a part of a recent curriculum restructuring effort. This course will be offered as an elective for all students interested in pursuing a business idea they feel could lead to entrepreneurship.

In secondary vocational technical education at the Anoka-Hennepin School District, a separate entrepreneurship course, or a component that can be a segment of many programs, is being developed for high school students. It is anticipated that students would acquire the basic knowledge and skills to start a small business if they so choose. It is also seen as providing student benefits for any work environment.

These examples show Minnesota has stepped forward in recognizing the value of developing entrepreneurial competence for vocational students. Vocational educators can improve the entrepreneurial competence of their students by knowing what specific management skills business owners from vocational programs consider the most important. Also, finding out where they have gained management assistance and their satisfaction level with that assistance can help technical educators plan entrepreneurial education initiatives.

Specific Business Management Skills Needed

There is an obvious need for educators to understand any market they are servicing. Several studies have researched the specific business management education needs of various small business owners (St. John Nelson 1983; Peterson 1984; Reynolds and West 1985; Stone and Wentling 1985; and Wichman 1983).

Peterson (1984) found that entrepreneurs who employed ten or fewer employees placed long-term business planning as the highest educational need. Since it was found by the Minnesota State Council on Vocational Education (1987) that entrepreneurial graduates engaged in relatively smaller businesses, 92 percent had ten or fewer employees. Peterson's study will be important in comparing findings.

Reynolds and West (1985) found that hiring competent personnel and securing adequate financing/managing capital cash flow were the biggest problems for new Minnesota firms averaging ten employees. The researchers also identified the first two years as the key time frame that will tell if the firms will grow or not. Wichman (1983) found that small business owners in Alaska and Wyoming rated their top business management skills needs in the accounting and marketing areas. Reynolds and Miller (1988) reported marketing skill development as the top interest of over 1,000 Minnesota businesses.

Stone and Wentling (1985) reported that new firms in Wisconsin found three barriers to the initial stage of starting a business, including (a) customer acquisition, (b) availability of credit, and (c) a bewildering array of regulations and taxes. They also found in their literature search that being female or a minority is a major barrier.

The exact business management education needs will depend on numerous factors, e.g., type of business, number of employees, and the owner's business management competency. The studies indicated various results depending on their respondents. Generally, marketing and financial management seem to be the top concerns of most entrepreneurs.

Business Technical Assistance Needs

Business technical assistance is defined as any educational instituion, government agency, or private business service that helps a entrepreneur in starting or maintaining their business (Minnesota Small Business Assistance Office 1987). Stone and Wentling's (1985) report cited Hutt (1982) who concluded that starting a small business is a complex process regardless of which road to entrepreneurship is chosen. First-time entrepreneurs are more likely to fail if they need and don't obtain the assistance of advisors in various business matters. Advisors who should be contacted include: (a) attorneys, (b) accountants, (c) bankers, (d) trade associations, and (e) the Small Business Adminstration (SBA).

However, potential entrepreneurs are often unaware of the assistance that is available to them. The Minnesota Governor's Council (1984) recommended the development of one comprehensive data base collection of service information available throughout the state. Information in this collection would include details on the type of service provided, location, names of contact people, costs, and evaluation of services provided. It would be implemented by computer through the state's library system. Providers of business technical assistance agree that small businesses and potential entrepreneurs rarely know about their services, but, at the same time, they fear that increased outreach

will create too much demand for existing resources (Minnesota Governor's Rural Development Council 1987).

The complex and broad nature of problems experienced by small businesses means that business technical assistance providers do not fall neatly into specific needs categories. For example, assisting a business with financial packaging may involve personnel management and operational issues. Providers are just beginning to streamline operations by doing what they do best (Minnesota Governor's Rural Development Council 1987). The strategy of providing a more efficient focus is seen as helping with the lack of coordination of business technical assistance providers.

The Minnesota Governor's Rural Development Council (1987) reported that a survey of business owners in southeastern Minnesota revealed that financial assistance from bankers, accountants, lawyers, and business associates was the most helpful. Friends, family, Chamber of Commerce, and government services were typically rated the least helpful providers of advice and/or assistance. The report also found that potential clients of business assistance indicated a preference for peer-to-peer exchange for basic managerial and financial information assistance. Written information was not seen as meaningful unless it is used as support material by an instructor or service provider.

This is supported by Peterson (1984), who identified the type of assistance used by small business owners with ten or fewer employees. Accountants (75 percent), lawyers (69 percent), business associates (50 percent), and personal friends and relatives (41 percent) were used for informational service and advice by larger percentages than workshops (37 percent), seminars (33 percent), Chambers of Commerce (30 percent), business courses (22 percent), and government sponsored agencies (9 percent).

All these studies mentioned are limited to the types of small business entrepreneurs identified in each survey. None of the studies identified the entrepreneurs as participants or graduates from a vocational program. Still, the studies are useful in providing a base for comparison of the business technical assistance received by vocational program graduates in this study.

Entrepreneur Financing Needs

Business management assistance is only one side of the coin in successfully starting and maintaining a business. Financing the business is the flip side.

However, financing needs are related to business management assistance. In asking for a loan, a potential entrepreneur needs to provide a business plan on the viability of the product, service, or idea; the target market; and projected sales. These are just the basic requirements. Often banks require a substantial amount of information from the entrepreneur to lessen the risk of loaning money to a new enterprise.

Stone and Wentling (1985) identified the following sources of start-up capital as a percentage of total start-up resources:

* Personal Savings	42 percent
* Family Members	11 percent
* Friends	3 percent
* Loans from Financial institutions	34 percent
* Government Loans	2 percent
* Other (e.g., venture capitalists, sale of stock, etc.)	9 percent

Knowing how and how often entrepreneurial graduates of vocational programs finance their enterprises can reveal the degree to which entrepreneurs need financing assistance or education and help shape appropriate curricula.

Summary

Anyone can start a business. The reasons and influences for someone to gain entrepreneurship status cover the entire spectrum. A myth surrounds the type of person who opens his/her own business. Many people assume that the self-employed business person has to be college-educated. This is simply not true.

Entrepreneurs come from all walks of life and educational backgrounds. Vocational technical education has helped produce numerous entrepreneurs. The State Council on Vocational Technical Education (1987) identified over 1,100 graduates who established their own businesses in a ten-year time frame. Paul Reynolds, a sociology professor at the University of Minnesota, found that 14 percent of the principal business owners have had vocational technical training in a 1987 study on new firms in Minnesota. This data suggests that vocational technical education has contributed to entrepreneurial initiatives in Minnesota.

The Minnesota Technical Institute system has in place farm and small business management programs that are specifically designed to improve management skills and develop business management skills directly.

Also, various vocational programs address some business management instruction to varying degrees. In addition, entrepreneurial education can provide numerous benefits besides direct aid to someone starting a business enterprise. However, we currently cannot determine if vocational technical education in Minnesota should be more or less deliberate in addressing business management instruction. Also, if vocational technical education should be more deliberate, what types of business management instruction do entrepreneurial graduates believe would be the most useful to address?

The study's main objective is to identify elements of business management instruction necessary to develop the entrepreneurial competence in Minnesota technical institute students. By asking related questions of recent graduates who have established their own businesses, recommendations can be made regarding appropriate business management curricula.

CHAPTER II

DESIGN OF THE STUDY

Population and Sample

The population for this study was the 1,169 entrepreneurial graduates from continuous programs of the Technical Institute system identified by the Minnesota State Council (1987). The entrepreneurs were identified by technical institute directors and teachers who could locate and provide a brief background about the graduates' businesses. Since there were no formal records of graduates' careers, the number of graduates identified cannot be considered an absolute total.

It was strongly felt that research answers to this study's objectives must come from the entrepreneurial graduates themselves. It was felt they could provide insight to questions involving entrepreneurship education in vocational technical education.

The entrepreneurial graduates represented all 34 Minnesota Technical Institute System campuses, all 12 vocational program areas, and all types of businesses except mining. It was felt that this provided a desirable mix to compare results across the entrepreneurs' backgrounds.

Development of the Questionnaire

The size of the population suggested using a mail survey questionnaire to collect the desired information. The questionnaire needed to be understandable and easy to fill out. It was felt that 10 to 12 minutes would be the most amount of time a potential respondent would spend. The questionnaire was designed around that time frame.

Questionnaire topics were developed from the research in the literature review and the needs of vocational technical education. Three studies surveying

various types of entrepreneurs provided a working framework for the questionnaire (Peterson 1984; Reynolds and West 1985; Stone and Wentling 1985). Questions were adapted and changed to fit the needs for this study.

Peterson's (1984) study was designed to identify the management assistance needs of a small business owner with ten or fewer employees. Since the initial study of the Minnesota State Council (1987) comprised a high percentage (92 percent) of businesses with ten or fewer employees, Peterson's study was significant. Fifteen business management competency areas were listed by Peterson that were needed to successfully start and maintain a small business. These business management competency areas help validate the potential needs for the entrepreneurial graduates from vocational technical education. The specific business management competency areas used for this survey were closely related to the 15 business management skills needed to run a business as proposed by Peterson.

The second part of the questionnaire asked participants to identify the assistance used to start and maintain their businesses. The Minnesota Small Business Assistance Office (1987) listings of assistance sources helped identify key areas. The intention was to see how much assistance was needed, what community resources were utilized the most, satisfaction level of each, and how the graduates' technical institute compared to other types of assistance.

The third part of the questionnaire was to complete demographic and individual background information. Special consideration was given to financing needs after the business was started, amount of work experience, and future business plans.

Limitations of the Study

Several limitations to the study should be noted. These may affect the generalizability of the study. They include the following:

(1) The study was limited to Minnesota. Any sample limited to one area limits the application to other areas.

(2) The sample is limited to the entrepreneurial graduates already identified by the Minnesota State Council (1987) between 1974 and 1983. Since this study identified as many entrepreneurial graduates as possible by the 34 Minnesota technical institutes, it did not necessarily represent a sample of all entrepreneurial graduates. This means that there may be entrepreneurs from the technical institutes who are unknown to the researcher.

(3) The sample is limited to vocational technical education entrepreneurial graduates. Any findings are limited to applications in this area. However, generalized findings may be applied to educational institutions with similar vocational technical education goals.

(4) The development of questionnaire, results, and recommendations were based on the review of the literature, the researcher's skill, and counseling advice. It is possible that the final questionnaire, results, and recommendations will not represent all the educational concerns of the sample.

(5) The study is limited to the educational needs and concerns of vocational entrepreneurial graduates. There was no attempt to rate the success of their enterprises or assess the personality characteristics that influence their business and concerns.

(6) The categorization of respondents into four vocational program areas presents a limitation on the application of any program area recommendations to a specific vocational program.

CHAPTER III

RESEARCH FINDINGS

The information collected through the questionnaire is summarized in this chapter. The first part provides a profile of the respondents' business and personal characteristics. The second part discusses the findings in relation to five specific research questions:

(1) What are the interests in further business management instruction identified by graduates of the different program areas?

(2) What are the business management problems identified by graduates of the different program areas?

(3) What is the perceived level of business management instruction in their program?

(4) What is the perceived benefit for increasing the amount of business management instruction in existing technical institute program areas?

(5) How did the technical institute compare to other sources of assistance in the start-up and maintenance of their business?

The profile of respondents is organized by (a) vocational programs represented, (b) characteristics of respondents' businesses, and (c) personal characteristics of the respondents. It should be noted that the profile of respondents is very similar to the Council's (1987) original study identifying the entrepreneurial graduates. Some of the same questions were asked again to help validate the results of the original survey.

Vocational Programs Represented

The 361 respondents for this study participated in 71 specific programs which were categorized into one of four program areas: (a) agriculture (15 percent), (b) marketing/management (11 percent), (c) industrial trades (52 percent), and (d) service areas (22 percent). The vocational programs were grouped in this fashion to ensure an adequate number of each category for comparative analysis. Table 1 in Appendix D shows the number of respondents by each vocational program area.

Characteristics of Respondents' Businesses

Types of Businesses

Respondents from the four vocational program areas engaged in a broad range of enterprises. Their businesses were distributed among all nine standard industrial classification (SIC) codes except mining.

Generally, agricultural program graduates engaged in farming and agriculture-related businesses. Marketing/management graduates engaged mostly in retail, wholesale, and service type businesses. Industrial trades program graduates operated mostly service and construction enterprises with a handful of retail stores. Service area program graduates engaged in service businesses with some retail operations (Table 2).

Collectively, 98 percent of entrepreneurial graduates were in enterprises related to their vocational programs (Table 2). The diversity of the 71 vocational programs represented in Table 1 is highly reflective of the diversity of the respondents' businesses. For example, an agriculture business/sales program graduate operated a feed mill, a supermarket management program graduate operated a supermarket, a carpentry program graduate operated a residential and light commercial construction business, and a commercial photography program graduate operated a photography studio and laboratory.

There were only eight businesses that were not related to the respondent's vocational program. One example is the graduate of a fashion merchandising program who operated a restaurant.

Number of People Employed

Marketing/management program graduates reported a higher average number of employees than all the other program areas combined. Together the 40 businesses operated by the marketing/management graduates employed an average of nine full-time people and six part-time people or 15 people total. The large employee averages are mainly due to four supermarket management graduates who employed approximately 100 people each. Without these four graduates, marketing/management graduates still averaged a total of 5.5 full- and part-time employees (Table 3).

Service area program graduates averaged three full-time people and 1.5 part-time people or 4.5 people total. Industrial trades graduates employed an average of 2.2 full-time people and 0.8 part-time people or three people total. Agricultural graduates employed an average of 0.9 full-time people and 1.3 part-time people or 2.2 people total (Table 3).

Thirty-four percent of the graduates reported no employees. Also, 90 percent of the respondents had ten or fewer employees. This compares to Reynolds and West's (1985) finding that 71 percent of the businesses in Minnesota have ten employees or fewer.

Business Operating Status

A total of 19, or five percent of the respondents' businesses, have discontinued operations (Table 4). Also, after contacting 30 non-respondents by phone to establish non-respondent validity, only two, or 7 percent, of the graduates reported they were not in business anymore.

However, 122 businesses in the original sample had insufficient addresses. Another 102 graduates chose not to participate in the survey. Those graduates may have a high percentage of discontinued business that would lessen an otherwise seemingly strong business success rate. Still, these results seem to suggest a high success rate when compared to Reynold's notation that half of Minnesota's new businesses fail in the first five years (Jones 1987).

Five Year Business Plans

Looking toward their business futures, respondents were asked to indicate their five-year business plans. Overall, 59 percent of the graduates saw "no major changes." Thirty-three percent saw a "significant increase in employees and revenues." Only one graduate saw a "decrease." Four percent indicated they were "getting out of the business," and another four percent said they were "starting a different business" (Table 5).

Agricultural program graduates indicated the least probability of business growth with only 14 percent seeing a business revenue or employee increase. Marketing/management program graduates had the most optimistic outlook with 41 percent anticipating an increase in employees or revenues.

Financing Sources

Personal savings, bank loans, and family members accounted for 90 percent of the respondents' financing needs to start their businesses. Government loans, friends, and other sources (e.g., contract deeds) represented the remaining ten percent (Table 6).

The percentage of financing sources listed in Table 6 compares closely to Stone and Wentling's (1985) study of small business development in Wisconsin. Stone and Wentling found that personal savings, bank loans, and family members accounted for 87 percent of total financial start-up sources.

Agricultural graduates were more likely to use government loans and family sources for financing assistance than graduates of other program areas. Marketing/management graduates also utilized family members for assistance more than graduates of other program areas. Industrial trade and service area program graduates relied more on personal savings to start their businesses than the graduates of other program areas.

Together, 60 percent of the respondents obtained at least five percent of their starting capital by a bank loan. This amount represented an average of 32 percent of their total starting capital. There was no significant difference between program areas in the amount of bank loans.

After their businesses were started, 62 percent of the respondents obtained financing assistance from a bank or credit union. Respondents averaged two years in their businesses before they sought financial assistance. Agricultural program graduates were most likely to seek financial assistance with 80 percent obtaining additional financing. Marketing/management and service area programs obtained additional financing the least with under 50 percent of their graduates seeking financing (Table 7).

Form of Business Ownership

Almost two-thirds of the respondents' businesses were sole proprietorships. Another 18 percent and 17 percent were indicated as partnerships and corporations respectively. Two respondents were operating a franchise.

Agricultural graduates had the highest percentage of partnerships at 46 percent, while marketing/management had the highest percentage of corporations at 40 percent. Industrial trade graduates had the highest percentage of sole proprietorships at 70 percent (Table 8).

Percent of Personal Income Derived from Business

Collectively, 73 percent of the respondents indicated their business provided between 75 percent and 100 percent of their personal income. Agricultural graduates were most likely to indicate that their business was their "main" source of income (85 percent).

Service area graduates engaged in the smallest businesses as measured by the percent of their personal income. Thirty-five percent of these graduates saw their businesses as being less than 50 percent of their total income. An example of this includes several tailoring and apparel program respondents who indicated on their surveys that their operations were "on-the-side" type businesses (Table 9).

Methods of Business Start: Established or Purchased

Overall, 68 percent of the respondents established new enterprises, while the remaining 32 percent purchased existing businesses. Many respondents who indicated they purchased an existing business added they "purchased a family business."

Agricultural graduates had the highest percentage of purchased businesses at 67 percent. Industrial trade graduates had the highest percentage of newly established businesses at 78 percent (Table 10).

Personal Characteristics of Respondents

Related Work Experience

Respondents worked an average of 6.2 years in related work prior to initiating their enterprises. The experience is almost evenly split with 3.2 years coming before graduation and 3.0 years coming after graduation.

Agricultural graduates had the most experience overall. This was due to an average of 7.6 years' work experience before graduation. Industrial trade and service area graduates had the most experience after graduation with an average of 3.2 years each (Table 11).

Value of Related Work Experience

Together, 80 percent of the respondents saw their work experience as "very helpful" in relation to starting their business. Only two percent saw their work experience as "not helpful at all." Two respondents indicated on their survey that their work experience was not related to their business and, thus, not helpful. There was no significant difference across program areas (Table 12).

Average Age Upon Graduation and Business Start

The respondents' average age upon graduation was 24.2 years. They were, on the average, 27.0 years old when they started their businesses. Agricultural graduates were the youngest graduates at 21.4 and youngest owners at 23.4. Marketing/management graduates were the oldest graduates at 28.8 and oldest owners at 30.1 (Table 13).

Marketing/management graduates also spent the least time (1.3 years) between graduating from their vocational program and starting their business. Agricultural graduates averaged two years while industrial trade and service area graduates averaged close to three years between school and entrepreneurship status (Table 13).

Community Population

The respondents were predominantly represented by communities with fewer than 10,000 people. Close to 60 percent of the respondents set up shop in these small population areas. Another 15 percent located their businesses in communities with a population between 10,000 and 30,000. Thirteen percent of the graduates were found in large population centers of over 100,000 people (Table 14).

Smaller communities were represented strongly by agricultural and industrial trade graduates. Close to 95 percent of agricultural graduates and over 75 percent of the industrial trade graduates located their enterprises in populations with fewer than 30,000 people (Table 14).

Ethnic Origin

Ninety-eight percent of the respondents indicated a white ethnic origin. Seven respondents indicated a different background, including three American Indians and two each from Hispanic and Asian backgrounds (Table 15).

Gender

Women graduates accounted for 16 percent of all respondents. Women entrepreneurs were mainly represented by service area (46 percent) and marketing/management (44 percent) vocational programs. Industrial trade (2 percent) and agricultural (0 percent) programs had significantly fewer women start their own businesses (Table 16).

Specifically, cosmetology was the program that appears to lend itself most readily to entrepreneurial initiatives for women. Other vocational programs that were significant in producing women entrepreneurs include tailoring and apparel services, commercial art, practical nursing, fashion merchandising, retail florist, and interior design.

Research Questions

The following five questions address the graduates' (a) main instructional interests, (b) business problems, (c) level of instruction received, (d) assessment of the benefit of increased business management instruction in vocational programs, and (e) sources of business start-up assistance.

1. What are the interests in further business management instruction identified by graduates of the different program areas?

The following lists reveals the entrepreneurial graduates' ranking of their top business management instructional interests:

Leading Interests	Lesser Interests
* Managing Capital/Cash Flow	
* Using Computers	
* Business Planning	
* Marketing Skills	
* Accounting Tax Procedures	
	* Accounting Ledger Procedures
	* Identify Industry Trends
	* Identify Potential Customers
	* Motivating/Compensating Personnel
	* Securing Financial Assistance
	* Sales Forecasting
	* Analyzing Competition
	* Government Reporting Regulations
	* Locating Professional Assistance
	* Determining Insurance Needs

The graduates were slightly more than "somewhat interested" (or 2.7 on a 1 to 4 ranking scale) in further instruction in the 15 business management competency areas. However, within the general findings, there were a few differences regarding the degree to which specific business management competency areas had the most instructional interest by the graduates.

Before discussing the specific instructional interests by program areas, it is important to note that the graduates' rankings of their business management instructional interest show a strong positive relationship to their ranking of business management problems (Table 17). In other words, if a graduate ranked a business management competency area like business planning a "severe problem," he or she was more likely to be "very interested" in obtaining further instruction. This means that the graduates' leading problems were also their leading continuing education interests. Again, these business management competency areas were: (a) business planning, (b) managing capital/cash flow, (c) marketing skills such as pricing, advertising, and selling, and (d) accounting tax procedures.

However, there was one discrepancy. The study found that the graduates ranked using computers second only to managing capital/cash flow as their top interest in further instruction. This result is unique when compared to the graduates' ranking it (a) last in importance, (b) tenth in perceived benefit for increasing instruction, and (c) ninth in being a business problem. By ranking using computers ninth in being a business problem and second in further instructional interest, these results may suggest that computers may not be a relatively major problem in their business operations. However, the graduates seem to see an opportunity in a greater utilization of computers further down the road.

Table 18 reports the frequency percentages of the graduates' top instructional interests by the four program areas. Agricultural graduates' top instructional interest was in using computers. Thirty-three percent of the graduates were "very much interested" in further instruction. Managing capital/cash flow was next with 28 percent being "very much interested." Only 16 percent of the graduates were "not interested at all" in these two competency areas.

Marketing/management graduates' top instructional interest was in (a) marketing skills such as pricing, advertising, and selling and (b) identifying potential customers. Only 16 and 13 percent of the graduates respectively were "not interested at all" in these two skills. A third of these graduates reported being "very much interested" in further instruction in managing capital/cash flow.

Industrial trade graduates identified (a) business planning, (b) managing capital/cash flow, (c) marketing skills, (d) accounting tax procedures, and (e) using computers as their most important continuing education interests. Only 20 percent or fewer of the graduates were "not interested at all" in instruction in these five business management competency areas.

Service area graduates parallel industrial trade graduates in instructional interests, but as with their rankings of business management problems, they had slightly less instructional interest. Service area graduates had 35 percent or fewer who were "not interested at all" in instruction in the top five business management skills listed above.

2. What are the business management problems identified by graduates of the different program areas?

Generally, the 15 business management competency areas were rated by the respondents as "minor problems" (or 3.0 on a 1 to 4 ranking scale). There were no significant differences across the vocational program areas in their overall rankings of business management problems. However, within these general findings, there were differences regarding the degree to which specific business management competency areas were rated as problems by different program area graduates.

Table 19 reports the frequency percentages of the graduates' top business management problems. Only marketing/management program graduates perceived certain business management competency areas as significantly more of a

problem than graduates from other program areas. Again this may be due to these graduates' operations having more employees. Five competency areas rated as more of a problem were (a) marketing skills such as pricing, advertising, and selling; (b) identifying potential customers; (c) motivating/compensating personnel; (d) analyzing competition; and (e) sales forecasting. Over 35 percent of the marketing/management graduates saw these business management competency areas as a "severe" or "major" problem. Another 40 percent saw these competency areas as a "minor" problem. Only 7 percent of these graduates perceived marketing skills such as pricing, advertising, and selling as "no problem at all."

Agricultural graduates rated managing capital/cash flow and securing financial assistance as their biggest problems. Each of these competency areas were rated by 16 percent of the agricultural graduates as being a "severe problem." Almost 50 percent rated managing capital/cash flow as a "major" or "severe" problem.

Industrial trade graduates also saw managing capital/cash flow as their biggest problem. Over 14 percent of the graduates saw this as a "severe" problem. Business planning was also a major concern with only 11 percent of graduates seeing it as "no problem at all."

Service area graduates also rated managing capital/cash flow and business planning as their biggest problems. These two skills were rated by only 26 percent of the graduates as being "no problem at all."

There is no statistical evidence to suggest that any business management competency problems were due to the amount of business management instruction received in their vocational programs. For example, marketing/management graduates reported a significantly higher degree of business management instruction than did industrial trade and service area program graduates, yet they rated their business management problems about the same. Pearson correlations were used to test the relationship. No relationships were found to be statistically significant.

The amount of related work experience obtained before initiating a business was also found to be unrelated to their identification of business management problems. These results did show that graduates with no related work experience rated some business management competency areas (i.e., marketing skills, managing capital/cash flow) as more of a problem, but the differences were not significant and did not hold true for the other business management competency areas.

3. What is the perceived level of business management instruction in their programs?

Generally, graduates from agricultural and marketing/management programs felt that significantly more topics related to business management instruction were addressed in their programs than did graduates from industrial trades and service area programs. However, within the general findings there were differences regarding the degree to which the 15 specific business management

competency areas needed to successfully operate a small business were addressed. Table 20 reports the percentage frequency by which vocational programs addressed business management instruction.

Graduates from agricultural programs were significantly more likely to indicate that their programs addressed (a) managing capital/cash flow, (b) accounting tax procedures, (c) securing financial assistance, and (d) locating professional assistance than were graduates from other program areas.

Graduates from marketing/management programs were significantly more likely to indicate their programs addressed (a) marketing skills such as pricing, advertising, and selling; (b) identifying industry trends; (c) identifying potential customers; (d) motivating/compensating personnel; (e) analyzing competition; and (f) sales forecasting than were graduates from other program areas.

Three business management competency areas were seen as rarely covered in all vocational programs. Determining insurance needs, government reporting regulations, and using computers were competency areas that were ranked low by all or most graduates.

A review of technical institute program curricula in industrial trades and service area programs shows various amounts of business management instruction being taught in such programs as telephone service, mobile communications, optical technology, electronics, appliance repair, cosmetology, child development, bakery, and others. The amount and design of any business management instruction is largely left up to the individual instructor and the program advisory committee. Also, examples were found where the small business management instructor "guest" lectured in other vocational programs to make students aware of entrepreneurial career alternatives and to teach some basic business management skills. While there is business management instruction being taught in the industrial trades and service area programs, a high percentage of graduates still consistently rated their experience as "not required" or "required but rarely discussed."

4. What is the perceived benefit for increasing the amount of business management instruction in existing technical institute program areas?

Collectively, repondents perceived that there would be "some benefit" (or 2.0 on a 1 to 4 ranking scale) for increasing business management instruction in their vocational programs. The top two business management skills were business planning and managing capital/cash flow. Over 45 percent of all graduates felt there would be "very much benefit" for increasing instruction in their vocational programs. Another 40 percent of all graduates perceived "some benefit" for increasing instruction in these skills. Only three percent of all graduates felt there would be "no benefit at all." Marketing skills and accounting procedures for taxes and ledgers also were rated strongly by all the graduates. Close to 80 percent of the graduates indicated increasing instruction in these business management areas would be of "very much benefit" or "some benefit" to their programs. Table 21 reports percentage findings on the perceived benefit of increased instruction in each business management skill area.

Looking at the individual program groups, agricultural graduates see a significantly greater benefit for increasing instruction in financial related areas such as (a) managing capital/cash flow, (b) accounting for tax procedures and (c) securing financial assistance than do graduates from other program areas. These results prove interesting when compared to their amount of instruction received in these areas. For example, 96 percent of the agricultural graduates indicated their programs "required" at least some instruction in managing capital/cash flow; while 76 percent see "very much benefit" for adding more instruction. This may suggest that even though agricultural programs are doing a lot in certain business management areas, there could perhaps be more.

Marketing/management graduates showed some similar patterns. For example, 92 percent of the graduates indicated their programs "required" at least some instruction in marketing skills such as pricing, advertising, and selling; while 72 percent perceived "very much benefit" in the notion of additional instruction. Again, this example may suggest that even though a skill area is addressed in a certain program area, there is a probable benefit to additional instruction.

Also marketing/management graduates perceived a significantly greater benefit for increasing instruction in areas such as (a) business planning, (b) identifying potential customers, (c) motivating/compensating personnel, (d) analyzing competition, and (e) sales forecasting than graduates from other program areas. These results may be logical considering that marketing/management graduates started businesses employing a greater number of employees. Presumably, they would have larger businesses with more customers and competitors.

Industrial trade and service area program area graduates perceived the same benefit for increasing business management instruction as did graduates from other programs areas. However, the amount of business management instruction they received was less than that reported by the agricultural and marketing/management program graduates. For example, industrial trade graduates' ranking of their perceived level of instruction in managing capital/cash flow was significantly less than reported by the agricultural graduates. Still, industrial trade graduates perceived the same benefit for increasing instruction in their programs. Another example shows that service area program graduates reported receiving significantly less instruction in using computers than did marketing/management graduates, but both groups perceived the same benefit of additional computer instruction.

5. How did the technical institutes compare to other sources of assistance in the start-up or maintenance of their business?

Technical institute assistance for the entrepreneurial graduate was assumed to originate from three possible sources:

* vocational instructors;

* business management skills developed through participation in their vocational programs; and

* technical institute's small business management program.

These three forms of technical institute assistance rank sixth, seventh, and eighth on a list of 15 possible sources of entrepreneurial assistance. Table 22 compares all sources of assistance.

Vocational instructors were the technical institutes' most visible form of assistance for graduates seeking self-employment. More than one in four graduates felt instructors assisted them in starting and maintaining their business. The survey did not enable the graduates to indicate exactly how this assistance was utilized. Agricultural graduates were more likely to use their instructors for assistance than any other program area. Marketing/management graduates were less likely to utilize instructors than other program areas.

The graduates' vocational programs were perceived as providing only slightly more business management assistance than the small business management programs. Over 80 percent of the graduates indicated that their vocational program participation did not provide or develop business management competency areas in the start-up or maintenance of their businesses. Generally, agricultural and marketing/management graduates indicated their programs were more likely to provide business management skills. This may be due to the specific objectives of many of their programs that focus on teaching business management skills directly (e.g., small business management, farm operations and management).

Some may consider that the nine percent of all graduates who utilized the small business management program to start and the 12 percent to maintain their businesses represent reasonable percentages. However, this means that 91 and 88 percent of the graduates did not use the program. Since all the graduates are from vocational programs, maybe they should be more aware and have better access to the small business management programs than other entrepreneurs. However, it should be noted that only 23 of the 34 campuses have a small business management program.

Outside the technical institute arena, the graduates gained assistance from five main sources: (a) friends, family, and relatives, (b) bank or credit union, (c) accountant, (d) lawyer, and (e) business associates. Peterson (1984) also found these as the top sources of management assistance. However, the percentage of reported usage was higher in Peterson's study of small business owners and managers.

Agricultural graduates were more likely to utilize friends, family, and relatives and bank or credit unions than the other program areas. Marketing/management graduates were more likely to utilize business technical sources such as the Chamber of Commerce, the Small Business Administration, and the Service Corps of Retired Executives (SCORE). They were also more likely to gain assistance from accountants and private business consultants than other program areas.

Generally, the graduates were satisfied with their assistance sources. The highest satisfaction levels rated by the graduates came from (a) friends, family, and relatives; (b) private business consultants; (c) accountants; and (d) other types of assistance. Only the Chamber of Commerce, Small Business Administration (SBA) loan program, Small Business Development Centers (SBDC) and SCORE were rated collectively to have less than "some satisfaction" by the graduates.

Peterson (1984) also found similar results where highest satisfaction with management assistance came from business people, accountants, and friends or relatives. The lowest satisfaction level came from government sponsored programs.

CHAPTER IV

CONCLUSIONS

The graduates who initiated their own businesses came from a wide range of vocational programs. Their operations are relatively small and mostly service or retail oriented. They are more likely to operate in smaller communities, be mostly male, and be Caucasian.

The graduates tend to be operating successfully. Only 5 percent of the graduates indicated their business has been discontinued. They further identified the 15 business management competency areas as "minor problems" in their businesses.

However, the graduates perceived a value in increasing the amount of business management instruction for their vocational programs. Looking forward, the graduates also indicated strong interest for further instruction in certain business management competency areas.

The following conclusions can be made from findings to the study's research questions.

* The vocational programs were perceived as assisting 10 to 25 percent of graduates in the start-up and maintenance of their businesses. Vocational instructors and the small business management programs also assisted 10 to 25 percent of the graduates. Their use of this technical institute assistance is far less than their use of assistance from accountants, banks, lawyers, friends and family, and business associates.

* Generally, agricultural and marketing/management programs are providing significant amounts of business management instruction in areas considered important by their graduates. Industrial trades and service area program graduates felt they received a significantly lower level of business management instruction.

* Collectively, the graduates perceived more than "some benefit" for increasing the amount of business management instruction in their

programs. Business planning, managing capital/cash flow, accounting, and marketing skills were the business management competency areas considered to have the most benefit. Agricultural graduates perceived a greater benefit for increased instruction in financial related areas while marketing/management perceived a greater benefit in marketing related areas.

* Overall, the graduates felt that their business management problems were "minor" in nature. There were no significant differences across program areas. However, some business management competency areas were considered "severe" or "major" problems by almost 50 percent of the graduates.

* Overall, the graduates felt slightly more than "somewhat interested" in continuing education for the 15 business management competency areas. There was no significant difference across program areas. However, around 30 percent of the graduates were "very much interested" in certain business management competency areas.

CHAPTER V

RECOMMENDATIONS

The State Council on Vocational Technical Education made four recommendations to the State Board of Vocational Technical Education and the State Board of Education based on this study. The recommendations, together with their rationales, appear in the discussion that follows.

Recommendation One: Emphasize (a) business planning, (b) computer applications, (c) managing capital/cash flow, (d) marketing skills, and (e) accounting skills in the small business management programs and other entrepreneurial education initiatives across all vocational program areas.

Rationale: Graduates across all program areas consistently indicated these skills as (a) having the greatest potential benefit for increasing instruction in their vocational program, (b) being the most problematic management competencies in their businesses, and (c) being the most likely to produce further enrollment in technical institute courses. Since the respondents' businesses were relatively small--90 percent had ten or fewer employees, and over one-third had no employees--graduates may be too busy "running the business" to find time for areas such as business planning. Also, nearly 60 percent of the graduates saw "no major changes" in the next five years of their businesses, possibly suggesting little thought for business planning ideas.

Emphasizing potential computer applications is unique when compared to the graduates' ranking it (a) last in importance, (b) tenth in perceived benefit for increasing instruction in their programs, and (c) ninth in being a business problem. In other words, graduates may be saying that computers are not currently necessary in their operations but they see an opportunity further on in their careers.

The graduates indicated a lesser need for skills such as determining insurance needs, government reporting regulations, and locating professional assistance, sales forecasting, and analyzing competition. Overall, these five skills were the lowest ranked business management problem areas and had the least instructional interest. This may be due to the smaller businesses started by the

graduates and the fact that over 60 percent of the businesses were located in communities of fewer than 10,000 people.

Recommendation Two: A separate analysis of individual program areas produced three separate curriculum recommendations. First, for agricultural programs, emphasize (a) accounting tax procedures and (b) securing financial assistance.

Rationale: Agricultural graduates indicated a significantly larger benefit of increasing instruction in these financially-related skills in their programs than the other three program areas. The graduates also indicated their program addressed these same skills more frequently than the other program areas. These results seem to say that even though agricultural programs are covering these financial areas, possibly they should do more. For example, nearly 96 percent of the agricultural graduates indicated their program required at least some instruction in managing capital/cash flow, while 76 percent perceived "very much benefit" for increasing instruction in their program.

The higher concern for financially-related skills also can be seen in the fact that agricultural graduates are more likley to obtain financing after establishing their businesses. Eighty percent of the graduates secured financial assistance after operations were starting, compared to 62 percent overall. Also, agricultural graduates had the highest amount of financial assistance from government loans. Thirteen percent of the graduates' financing sources to establish their businesses came from government loans compared to two percent overall.

Second, for marketing/management programs emphasize business management instruction in (a) analyzing competition, (b) identifying potential customers, and (c) motivating/compensating personnel.

Rationale: Marketing/management graduates indicated a significantly larger benefit of increasing instruction in these marketing- and management-related skills in their programs. The graduates also indicated that their programs addressed these same skills more frequently than other program areas. These results seem to say that even though marketing/management programs are covering these marketing an management skill areas, possibly they should do more. For example, nearly 96 percent of the graduates indicated marketing skills such as pricing, advertising, and selling were required in their vocational program, while 72 percent perceived "very much benefit" for increasing instruction for their program.

The higher concern for marketing and management skills may be due to marketing/management graduates having businesses with more employees. They averaged a total of 15 part- and full-time employees compared to five total employees overall. Therefore, these graduates may have more customers and competitors and be in greater need of marketing and management assistance.

Third, for industrial trade and service area programs explore business management curriculum or other related business strategies that could be developed by the technical institutes' small business management extension program. Possible strategies might include (a) a separate business mangement course that can be offered as an elective or requirement, (b) curriculum strategies

that integrate business management with program skill training and (c) guest lecturing by small business management instructors.

Rationale: Industrial trades and services area program graduates received significantly less business management instruction than graduates of the other program areas. Over 80 percent of the industrial trade and service area graduates indicated their vocational program did not provide any business management assistance to start and maintain their businesses. Still, these graduates perceived the same benefit for increasing instruction in business management skill areas as did agricultural and marketing/management graduates, who received significantly more business management education. For example, 90 percent of industrial trade and service area graduates perceive "very much benefit" or "some benefit" for increasing instruction in business planning in their programs. This compares very closely with the 93 percent of agricultural and marketing/management graduates who perceive "very much benefit" or "some benefit" for increasing instruction in their programs.

In addition, a survey by the State Board on Vocational Technical Education (1987) found business management curriculum in programs such as telephone service, mobile communications, optical technology, electronics, appliance repair, and cosmetology. Approximately 12 percent of the teachers surveyed indicated they taught some business management areas. Almost 60 percent of the teachers indicated they were interested in obtaining information relating to entrepreneurship education.

Also, integrating business management curriculum in industrial trade and service area programs can be a part of the push for general education that includes basic skills and communication skills.

This recommendation is not designed soley for the purpose of enabling vocational students to start more businesses, although that benefit should not be ignored. Besides producing future entrepreneurs, business management education can promote:

* an understanding of their employers' business management problems;
* creation of higher-order thinking skills, which include problem solving, critical thinking, analysis, synthesis, interpretation, and evaluation skills;
* alternatives to unemployment if jobs in their field are scarce; and
* a motivating element for risk-taking, innovative students.

One industrial trade program graduate offered this view on developing business management education in the industrial trade programs:

> Basic business management should be a required subject in every trade course taught. This is not necessary just for future employers, but also to produce a more profitable employee. A successful business is one that everybody is fully aware of and understands the meaning of overhead and profit.

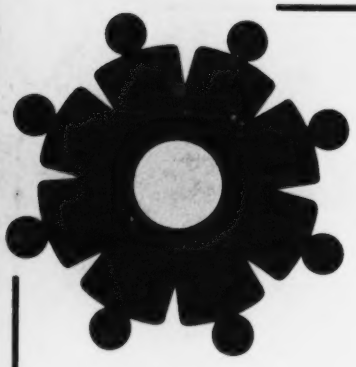
Recommendation Three: Promote the involvement of vocational program instructors in any business management instruction initiatives across all program areas.

Rationale: Collectively, over 25 percent of the graduates indicated that vocational instructors were utilized for assistance to start and maintain their business. This professional assistance was used more than the technical institutes' small business management programs or any business management curricula taught in their program. Entrepreneurs prefer one-on-one counseling to formal educational programs in assisting their business start (Ibrahim and Goodwin 1986). One marketing/management graduate said: "I consider the vocational instructors as some of the most motivated and helpful people I ever met." However, a few respondents indicated their instructor was not so willing to lend a helping hand. Said one industrial trade graduate; "The instructor only discouraged us from going into business by ourselves."

Recommendation Four: Emphasize opportunities for entrepreneurship education strategies to meet the special needs of targeted populations and to promote vocational equity for all students.

Rationale: Only two percent, or seven graduates, were from a racial minority. In 1987, the Minnesota Technical Institute System has approximately a ten percent racial minority enrollment. Nationally, research has shown that racial minority groups have lower business formation rates with less than 5 percent of all businesses minority-owned.

Sixteen percent of the graduates were female. Currently, the technical institute system has approximately a 42 percent female enrollment. This compares to national research which shows that in 1984 women own 26 percent of all small businesses, up from 4.5 percent in 1972. The percentage of women who are choosing self-employment is five times the rate of men.



APPENDIX A

QUESTIONNAIRE

1. A number of business skills are needed to successfully operate a small business. Please evaluate each listed skill in terms of its importance, degree your vocational program addressed this skill, and if adding instruction in this skill to your vocational program would have been beneficial. Please rate each skill listed below on the following scales. Circle the number that best describes your answer.

	Importance 1 = Very important 2 = Important 3 = Somewhat important 4 = Not important	Degree Your Vocational Program Addressed This Skill 1 = Required & often discussed 2 = Required & sometimes discussed 3 = Required but rarely discussed 4 = Not required	Benefits of Added Instruction 1 = Very much benefit 2 = Some benefit 3 = Very little benefit 4 = No benefit at all
• Business Planning	1 2 3 4	1 2 3 4	1 2 3 4
• Reporting Procedures for Government Regulations Forms	1 2 3 4	1 2 3 4	1 2 3 4
• Marketing Techniques such as Pricing, Advertising and Selling	1 2 3 4	1 2 3 4	1 2 3 4
• Using Computers	1 2 3 4	1 2 3 4	1 2 3 4
• Identifying and Analyzing Potential Customers	1 2 3 4	1 2 3 4	1 2 3 4
• Accounting Procedures for Tax Purposes	1 2 3 4	1 2 3 4	1 2 3 4
• Basic Accounting for Ledgers	1 2 3 4	1 2 3 4	1 2 3 4
• Managing Capital/Cash Flow	1 2 3 4	1 2 3 4	1 2 3 4
• Analyzing Competition	1 2 3 4	1 2 3 4	1 2 3 4
• Locating Technical and Professional Assistance	1 2 3 4	1 2 3 4	1 2 3 4
• Understanding Industry Trends	1 2 3 4	1 2 3 4	1 2 3 4
• Motivating/Compensating Personnel	1 2 3 4	1 2 3 4	1 2 3 4
• Determining Insurance Needs	1 2 3 4	1 2 3 4	1 2 3 4
• Securing Financial Assistance	1 2 3 4	1 2 3 4	1 2 3 4
• Sales Forecasting	1 2 3 4	1 2 3 4	1 2 3 4

2. The same business skill listed in Question 2 can be problems for some businesses. Please evaluate each skill on how much of a problem it is in your business and your interest in any further education or training.

Business Problem	Severity of Business Problem 1 = Severe problem 2 = Major problem 3 = Minor problem 4 = No problem at all	Interest in additional training or education 1 = Very interested 2 = Interested 3 = Somewhat interested 4 = Not interested at all
• Business Planning	1 2 3 4	1 2 3 4
• Reporting Procedures for Government Regulation Forms	1 2 3 4	1 2 3 4
• Marketing Techniques such as Pricing, Advertising and Selling	1 2 3 4	1 2 3 4
• Using Computers	1 2 3 4	1 2 3 4
• Identifying and Analyzing Potential Customers	1 2 3 4	1 2 3 4
• Accounting Procedures for Tax Purposes	1 2 3 4	1 2 3 4
• Basic Accounting For Ledgers	1 2 3 4	1 2 3 4
• Managing Capital/Cash Flow	1 2 3 4	1 2 3 4
• Analyzing Competition	1 2 3 4	1 2 3 4
• Locating Technical and Professional Assistance	1 2 3 4	1 2 3 4
• Understanding Industry Trends	1 2 3 4	1 2 3 4
• Motivating/Compensating Employees	1 2 3 4	1 2 3 4
• Determining Insurance Needs	1 2 3 4	1 2 3 4
• Securing Financial Assistance	1 2 3 4	1 2 3 4
• Sales Forecasting	1 2 3 4	1 2 3 4

3. Many entrepreneurs have obtained assistance from organizations and individuals in starting and maintaining. Please indicate with a check mark ( ) if you have used any of the types of assistance listed below. Then please rate the importance of and your satisfaction with the organizations and/or individuals that you have checked. Circle the number that best describes your answer using the following scales:

	Please check if you have used any of the following for:		Importance	Satisfaction
	Starting Your Business	Maintaining Your Business	1 = Very important 2 = Important 3 = Somewhat important 4 = Not important	1 = Very 2 = Some 3 = Little 4 = No
			Note: Only rate the importance and satisfaction scales if you have checked one of the first two columns.	
Business Technical Assistance				
• Chamber of Commerce	___	___	1 2 3 4	1 2 3 4
• Small Business Development Center	___	___	1 2 3 4	1 2 3 4
• Trade Association	___	___	1 2 3 4	1 2 3 4
• Service Corps. of Retired Executives (SCORE)	___	___	1 2 3 4	1 2 3 4
• AVTI/Small Business Management Prog.	___	___	1 2 3 4	1 2 3 4
• Business startup and operational skills provided by your vocational program	___	___	1 2 3 4	1 2 3 4
Professional				
• Accountant	___	___	1 2 3 4	1 2 3 4
• Lawyer	___	___	1 2 3 4	1 2 3 4
• Private Business Consultant	___	___	1 2 3 4	1 2 3 4
Personal				
• Friends, family or relatives	___	___	1 2 3 4	1 2 3 4
• Business Associates	___	___	1 2 3 4	1 2 3 4
• Vocational Instructor	___	___	1 2 3 4	1 2 3 4
Financial				
• Bank or credit union	___	___	1 2 3 4	1 2 3 4
• Small Business Administration (SBA) Loan Program	___	___	1 2 3 4	1 2 3 4
Any other type of assistance:				
(please specify)	___	___	1 2 3 4	1 2 3 4

State Council on Vocational Technical Education

The following questions are about you and your business that will help understand the responses better. Please answer the following questions.

4. Which category best describes your business?

___ Agricultural
___ Construction
___ Manufacturing
___ Transportation/Communications
___ Other (please specify) _____
___ Wholesale Trade
___ Retail Trade
___ Finance/Insurace/Real Estate
___ Service

Briefly describe your business?

_____

What percent of your personal income is derived from your business?
___ 75% - 100% ___ 50% - 74% ___ less than 50%

5. What are the total number of part-time and full-time employees in your business?
___ Full-time employees ___ Part-time employees
___ Check here if there are no employees

6. What is the form of business ownership?
___ sole proprietorship ___ corporation
___ partnership ___ other (describe)
___ franchise _____

7. Did you:
___ start your business ___ buy out an existing business
___ get into business some other way (describe)_____

8. About what percentage of funds you used to start this business did you get:
___ % from personal savings ___ % through bank loans
___ % from family members ___ % through government loans
___ % from friends ___ % from other sources (please identify)
_____

9. Have you obtained financial assistance from a bank or credit union after you started your business?
___ yes ___ no
If yes, how long afer you started your business did you first receive financial assistance? ___ (years)

10. What year did you start your business? _____

11. Are you still operating your business?
___ Yes ___ No If not, what year did you stop? _____

12. What are your business plans for the next 5 years?
___ Significant increase in employees and revenue
___ Significant decrease in employees and revenue
___ No major changes
___ Get out of business
___ Start a different business

13. How long had you worked in a related business or industry before you became a business owner?
Before graduation: ___ years After graduation: ___ years
Total related work experience before starting business: ___ years

14. How valuable was this work experience in relation to starting your business?
___ very helpful ___ helpful ___ somewhat helpful
___ not helpful at all

15. Your community population is:
___ less than 10,000 ___ between 60,000 and 100,000
___ between 10,000 and 30,000 ___ between 100,000 and 250,000
___ between 30,000 and 60,000 ___ over 250,000 people

16. Vocational Program: _____
Year graduated: _____

17. Technical Institute Attended: _____

18. Year of Birth: _____

19. Ethnic Origin:
___ American Indian ___ Black ___ Hispanic
___ White ___ Other

20. Sex: ___ M ___ F

21. Any opinions, comments, or suggestions relating to this survey.
_____
_____

APPENDIX B

RESULTS FROM RANDOM SAMPLING OF NON-RESPONDENTS

Results of Random Sampling of 30 Non-Respondents

1. Are you still operating your business?

28	yes
2	no

2. How many employees do you have?

5.7 (average)

3. Is your business your main source of income?

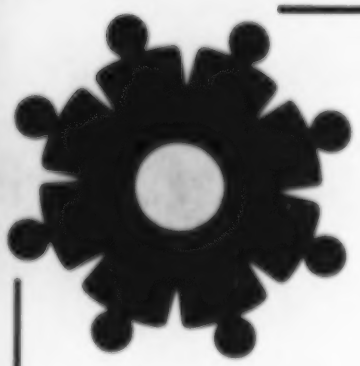
27	75 - 100 percent
1	50 - 74 percent
2	less than 50 percent

4. What are your future business plans for the next five years?

14	Increase in employees and revenue
0	Decrease in employees and revenue
15	No major changes
0	Get out of business
1	Start a different business

5. What is the type of your business?

4	Agricultural
1	Manufacturing
4	Construction
1	Transportation/Communication
8	Retail
12	Service



APPENDIX C

RESPONDENTS' OPINIONS, COMMENTS, OR SUGGESTIONS

RELATING TO THE SURVEY

A total of 75 respondents gave an opinion, comment, or suggestion relating to the survey. The comments help articulate the respondent's concerns regarding the study's main purpose in developing business management or entrepreneurial competence for students of Minnesota's technical institutes.

Most of the comments relating to more or less business management instruction came from industrial trade and service area graduates. The other two comments related to agricultural graduates suggesting more financial education in their programs.

Marketing/management and agricultural graduates were concerned more with a certain aspect of their vocational programs, their business operations, or the survey instrument itself.

The comments relating to more business management education centered around the following areas:

(1) a separate business course,
(2) instructor being receptive to business,
(3) specific business skill areas to be taught,
(4) more business continuing education programs, and
(5) non-encouragement to be an employer.

The comments relating to less business management education generally said that their programs should focus on the trade area and that business courses should be taken somewhere else.

They were broken down into four categories:

(1) 21 comments relating to more business management instruction

(2) 9 comments relating to less business management instruction

(3) 26 comments relating to the vocationalprograms and business operations

(4) 19 comments relating to the survey instrument

75 total comments

In the comments reproduced below, Ag = agricultural graduate, MM = marketing/management graduate, IT = industrial trades graduate, and SA = service areas graduate.

Comments Relating to More Business Management Education

* My husband went for diesel mechanics and in his course they more or less taught him to be a mechanic and not really a business owner. So therefore he has had to do the managing on trial and error. So far we've done okay.

* As for me, I attended a general secretary program and it helped some as far as the bookkeeping end of the business. Yet there are areas that I would like to be more educated in . . . such as Basic Accounting, using computers, managing capital/cash flow, insurance needs, government forms and regulations. The education we both have received has been a big help and has got us this far in the business world. (IT & SA)

* Instructors need to be more receptive to sole proprietors and partnerships. (IT)

* I did not feel the Technical Institute was encouraging persons to begin a business after graduation. At the time of my schooling I felt students were being encouraged to work for someone else - as an apprentice, for example - rather than pursuing their own small business. I distinctly remember feeling frustrated by the lack of pertinent information to beginning a small business immediately out of school. (IT)

* I knew I would be self-employed. I struggled several years trying to determine what I should be charging competively in the market, how to satisfy my accountant and the tax form requirements. (SA)

* I do not foresee the next five years as being a strong time of expansion solely because of [family considerations]. However, the following five year plan may be much more profitable. With that in mind I would be interested in any continuing education courses that may be offered in the future. (IT)

* I believe the program could be greatly improved. Teaching a lot of irrelevant subjects and lacking many others. (SA)

* More financial work would greatly improve program. (Ag)

* It pays to have a wife who can do all my accounting. A separate course in business management would be helpful. (IT)

* As in this program most are planning to work under an employer. As for me, I would like further education in some of these areas. (IT)

* There needs to be more instruction relating to managing people and time and how to get the most from people. (SA)

* I think being self-employed and operating a small business are two different things. Since <u>many</u> artists become freelancers! I think a lot of vocational instruction should be devoted to it. (SA)

* The instructor only discouraged us from going into business by ourselves. (IT)

* My program--optical technology should be a two-year program with the second year covering business topics--sales, accounting etc. (SA)

* Incorporate optional business courses. (IT)

* There is a definite need for educational material on start-up and maintaining a business before and after graduation. (SA)

* Basic business management should be a required subject in every trade course taught. This is not necessary just for future employers, but also to produce a more profitable employee. A successful business is one that everybody is fully aware of and understands the meaning of overhead and profit. (IT)

* Cost estimating and job planning was major area lacking. (IT)

* I found that business management and basic business accounting is badly lacking in the vocational system even though skill training is excellent. (IT)

* There should be elective classes on the establishment of a business and ongoing update classes (IT)

* I felt that I was under-educated after I started my business due to less instruction on opening a business from the vo-tech. Without previous business experience, I would have failed. (IT)

* Managing capital/cash flow is very important to understand - can be easy to let it get away. (Ag)

Comments Relating to Less Business Management Education

* No school can teach all there is to know about operating your own business including a 20-year college program. You have to know the business you are in, use a little common sense, and be willing and able to take a few hard knocks and work a lot of long hours. (IT)

* Common sense goes a long way. (MM)

* In my store the best way to learn is on the job. (MM)

* One goes to school to learn the trade and not starting a business. That comes by itself. (IT)

* No education program can prepare you for everything that can happen! The learning process never stops. (IT)

* For mechanics, they should work for somebody else two to four years before going on his/her own. (IT)

* The program focused on the sign work itself. Those who want to be in business should expect to supplement their education with some form of additional business training. (SA)

* Ownership for most students not an option at this point. Other courses available for business. (IT)

The vocational system is headed in the wrong direction to encourage new business. (IT)

Comments Relating to the Vocational Programs and Business Operations

* I wish to let you know my husband was mostly responsible for helping me get into business. I had the bakery skills but no knowledge of business - he has a college degree in accounting. If not for his support, we may have not been successful. (SA)

* Value of record keeping was stressed as being very important. (SA)

* Get teachers off their ___ and start earning what they are over paid. Give the tax payers what they are paying for. (IT)

* My agriculture program was superb in preparation for my agriculture occupation. (Ag)

* I feel a need for improvement in the cosmetology department. The program was excellent in part. The improvement should be in the clinic department where more intensive hands-on training is needed . . ., even before they train under someone. (SA)

* Save your money and work like hell. Nobody makes it for you. (IT)

* Course taught true craftsmanship and quality work. (IT)

* Vocational training has been very good for me and I suggest more continuing education programs.

* My spouse graduated from a secretarial program. She is my bookkeeper - without her knowledge I could not have made the business work. (IT)

* Our program dealt mostly with repairing cars but not much preparation was given for business. (IT)

* On the first page I answered #4 in the second category most often because the program was designed to teach technical skills. (IT)

* Survey O.K. While attending vo-tech I had no idea I would start my own business. So at only 17 years old I wasn't concentrating on business management. Only learning a trade. But school did touch on "management." (IT)

* I consider the vocational instructors as some of the most motivated and helpful people I have ever met. (MM)

* I've hired employees directly from vo-tech recently, feel they are pushing them too fast. Should deal out basics more. (IT)

* Always write your plan or dream down on a piece of paper - read it - and go for it! (IT)

* I am very happy that I went to my technical institute. It was the knowledge I needed to get me going. (IT)

* I feel there should be a limit on years in teaching so a teacher can play "catch up" with new trends, and hands-on experience. When a student chooses a vocation - he is choosing a lifetime. The one teaching it should know the best and newest. (IT)

* Twenty years in unrelated retail business was a great advantage to new business start-up. (MM)

* Teach true emotional requirements. Sacrifices/home effect/ commitment/truth. Would be interested in advising or speaking. (SA)

* Most of the catagories listed are not taught in mechanical trades classes. (IT)

* God help us with the tax climate and legislature. (IT)

* I bought from my father so that helps make it easier for me. (Ag)

* Government could do more to help small business to expand and make us more aware of them. (SA)

* Vo-tech gave me the skills to repair cars, not how to operate a business. I learned that by trial and error. (IT)

* Vocational institutes should visit various work places to allow students to see what really transacts with the public. (SA)

* Have your instructors more up to date on why industry is run. No more "This is why we did it." (IT)

Comments Relating to Survey Instrument

* Many of the questions did not pertain to my business or vocation. (Ag)

* I think survey was a very good idea. (MM)

* This survey is not very applicable to the farming business. (Ag)

* Please apply the knowledge of this survey in an effective way. (SA)

* Survey has little to do with farming. (Ag)

* I like the survey because farming is a business! There are many days that my program comes in use. (Ag)

* Not real applicable to the typical farming operation. (Ag)

* Good survey, practical questions. (MM)

* I would fill out more questions if I understood them. (IT)

* Please send me results. (IT)

* I feel this survey will help future vocational schools. (IT)

* Good idea - hope it helps. (Ag)

* My "business" is really too small to even justify answering this survey. (SA)

* Your survey is too extensive. More people will respond if you were to shorten it or conduct verbally. (MM)

* Could be made easier to fill out and take less time. (IT)

* Appears to be a good survey. (SA)

* I am on an advisory committee. Would like comments on success of committees' infuence on programs. Survey is excellent. (MM)

* Thank you! I hope it helps students today. (SA)

* These are a pain to fill out but it's a good cause. (MM)

APPENDIX D

TABLES 1 - 22

Table 1

Listing of Respondents' Vocational Programs by Program Area

Program Area	n	Percent
1. Agriculture	53	14.8
• Farm Operations Management	38	10.5
• Dairy Herd Management	9	2.5
• Agriculture Business/Sales	3	0.8
• Agriculture Banking/Finance	1	0.3
• Production Agriculture	1	0.3
2. Marketing/Management	41	11.4
• Small Business Management	11	3.0
• Supermarket Management	8	2.2
• Marketing/Merchandising Management	7	1.9
• Fashion Merchandising	6	1.6
• Retail Florist	4	1.1
• Interior Design	3	0.8
• Travel Planner	2	0.6
3. Industrial Trades	186	51.9
• Diesel/Farm Equipment Mechanics	28	7.8
• Auto Mechanics	19	5.3
• Auto Body	19	5.3
• Carpentry	17	4.7
• Appliance Repair Service	16	4.3
• Welding	8	2.2

Table 1
(continued)

Listing of Respondents' Vocational Programs by Program Area

Program Area	n	Percent
(Industrial Trades continued)		
• Electrician-Construction	7	1.9
• Clock/Watch Repair	7	1.9
• Marine/Small Engine Repair	7	1.9
• Plumbing	6	1.6
• Electronic Technician	5	1.4
• Machinist/Tool & Die	5	1.4
• Construction	5	1.4
• Cabinetmaking	4	1.1
• Upholstery	4	1.1
• Electric Motor Technician	4	1.1
• Auto Machinist	3	0.8
• Gunsmithing	3	0.8
• Building Drafting	2	0.6
• Modern Wood Technology	2	0.6
• Aviation Mechanics	2	0.6
• Motorcycle Mechanics	2	0.6
• Truck Driving	2	0.6
• Fiberglass Lamination	1	0.3
• Jewelry Manufacturing Repair	1	0.3
• Musical String Repair	1	0.3

Table 1
(continued)

Listing of Respondents' Vocational Programs by Program Area

Program Area	n	Percent
• (Industrial Trades continued)		
• Non-destructive Testing Technology	1	0.3
• Aviation Electronics	1	0.3
• Heavy Construction Equipment Mechanics	1	0.3
• Music Game Repair	1	0.3
• Electrical Design Drafting	1	0.3
• Waterwelling	1	0.3
4. Service Areas	78	21.8
• Cosmetology	12	3.4
• Accounting	7	1.9
• Sign Lettering & Design	6	1.6
• Tailoring	5	1.4
• Cook/Chef Training & Management	5	1.4
• Computer Programming/Data Processing	4	1.1
• Bakery	4	1.1
• Horticulture	3	0.8
• Commercial Art	3	0.8
• Broadcast Technology	3	0.8
• Media Production	3	0.8
• Dental Lab	3	0.8

Table 1
(continued)

Listing of Respondents' Vocational Programs by Program Area

Program Area	n	Percent
(Service Areas continued)		
• Practical Nursing	3	0.8
• Recordkeeping	2	0.6
• Respiratory Therapy	2	0.6
• Optical Technology	2	0.6
• Apparel Services	2	0.6
• Secretarial	1	0.3
• Microcomputer Technician	1	0.3
• Landscaping	1	0.3
• Forest Harvesting	1	0.3
• Commercial Photography	1	0.3
• Telephone Technician	1	0.3
• Graphic Arts	1	0.3
• Prosthetics	1	0.3
• Meatcutting	1	0.3

* Three missing answers from respondents (n = 358)

Table 2

Distribution of Business Types by Program Areas

Business Type	Agriculture	Marketing/ Management	Industrial Trades	Service Areas	All Respondents
Agriculture	51	0	8	0	59
Construction	0	0	41	1	42
Manufacturing	0	0	8	2	10
Transportation/ Communication	1	0	2	1	4
Wholesale	0	6	2	6	14
Retail	0	19	17	13	49
Finance	1	0	1	3	5
Services	0	15	104	52	171
Total	53	40	183	78	354
Number in Related Enterprises	53	38	178	77	346

* Seven missing answers from respondents (n = 354)

Table 3

Employee Averages by Program Areas

Employee Averages	Agriculture	Marketing/ Management	Industrial Trades	Service Areas	All Respondent's
Full-time	.9	9.0	2.2	3.0	2.6
Part-time	1.3	6.0	0.8	1.5	2.3
Total Employee Average	2.2	15.0	3.0	4.5	4.9

* Three missing answers from respondents (n = 358)

Table 4

Business Operating Status of Respondents by Program Area

Operating Status	Agriculture	Marketing/ Management	Industrial Trades	Service Areas	Mean Time of Operation Years
Still Operating	50	37	170	74	6.2
Discontinued Operations	1	2	12	4	4.1
Total	51	39	182	78	

* Eleven missing answers from respondents (n = 350)

Table 5

Respondents' Future Five Year Business Plans by Program Area

Plans	Agriculture	Marketing/ Management	Industrial Trade	Service Area	All Respondents
Significant increase in employees and revenue	7	16	58	30	111
Significant decrease in employees and revenue	0	0	1	0	1
No major changes	40	19	100	40	199
Get out of business	3	1	6	3	13
Start a different business	1	3	7	1	12
Total	51	39	172	74	336

* Twenty-five missing answers from respondents (n = 336)

Table 6

Respondents' Percentage of Financing Sources to Start Businesses by Program Area

Financing Sources	Agriculture	Marketing/ Management	Industrial Trade	Service Area	All Respondents
Personal savings	22%	38%	50%	48%	44%
Family members	20%	21%	12%	10%	14%
Friends	0%	1%	1%	1%	1%
Bank loans	34%	35%	31%	33%	32%
Government loans	13%	2%	1%	1%	3%
Other sources	11%	3%	5%	7%	6%
Total	100	100	100	100	100

* Eleven missing answers from respondents (n = 350)

Table 7

Respondents' Use of Financing Assistance after Businesses were Started by Program Area

Financing After Start	Agriculture	Marketing/ Management	Industrial Trades	Service Areas	All Respondents
Yes	40	18	123	36	217
No	10	21	58	42	131
Total	50	39	181	78	348

* Thirteen missing answers from respondents (n = 348)

Table 8

Respondents' Form of Business Ownership by Program Area

Form of Ownership	Agriculture	Marketing/ Management	Industrial Trades	Service Areas	All Respondents
Sole Proprietorship	25	20	129	52	226
Partnership	24	4	26	11	65
Corporation	3	16	28	13	60
Franchise	0	0	0	2	2
Total	52	40	183	78	353

* Eight missing answers from respondents (n = 353)

Table 9

Respondents' Percent of Personal Income Derived from their Businesses by Program Area

Percent of Personal Income	Agriculture	Marketing/ Management	Industrial Trades	Service Areas	All Respondents
75% - 100%	44	29	135	50	258
50% - 74%	3	6	21	11	41
Less than 50%	5	5	27	17	54
Total	52	40	183	78	353

*Eight missing answers from respondents (n = 353)

Table 10

Respondents' Method of Business Start: Established or Purchased by Program Area

Method of Business Start	Agriculture	Marketing/ Management	Industrial Trades	Service Areas	All Respondents
Established	17	24	144	56	241
Purchased	35	16	39	22	112
Total	52	40	183	78	353

* Eight missing answers from respondents (n = 353)

Table 11

Respondents' Related Work Experience Before Becoming Business Owners by Program Area

Years of Related Work Experience	Agriculture	Marketing/ Management	Industrial Trade	Service Areas	All Respondents
Before Graduation	7.6	4.1	2.2	2.2	3.2
After Graduation	2.3	2.5	3.2	3.2	3.0
Total Years of Related Work Experience	9.9	6.6	5.4	5.4	6.2

* Twenty-nine missing answers from respondents (n = 332)

Table 12

Respondents' Rating of Value of Related Work Experience by Program Area**

Value of Work Experience	Agriculture	Marketing/ Management	Industrial Trades	Service Areas	All Respondents
Very Helpful	40	27	118	59	244
Helpful	5	4	26	3	38
Somewhat Helpful	0	1	12	3	16
Not Helpful at All	0	1	4	2	7
Total from Respondent's	45	33	160	67	305

* Fifty-six missing answers from respondents (n = 305)

** Chi-square test shows no statistical difference across program areas.

Table 13

Respondents' Average Age Upon Graduation and Business Start by Program Area

	Agriculture	Marketing/ Management	Industrial Trades	Service Areas	All Respondents
Average age upon graduation	21.4	28.8	23.4	26.3	24.2
Average age upon business start	23.4	30.1	26.3	29.6	27.0
Difference between	2.0	1.3	2.9	3.3	2.8

* Thirty missing answers from respondents (n = 331)

Table 14

Respondents' Community Population by Program Area

Community Population	Agriculture	Marketing/ Management	Industrial Trades	Service Areas	All Respondents
less than 10,000	45	15	110	38	208
between 10,000 and 30,000	3	7	30	12	52
between 30,000 and 60,000	2	8	13	7	30
between 60,000 and 100,000	1	2	5	6	14
between 100,000 and 250,000	0	2	4	2	8
over 250,000 people	0	4	20	13	37
Total	51	38	182	78	349

* Twelve missing answers from respondents (n = 349)

Table 15

Respondents' Ethnic Origin by Program Area

Ethnic Origin	Agriculture	Marketing/ Management	Industrial Trade	Service Areas	All Respondents
American Indian	0	0	3	0	3
Black	0	0	0	0	0
Hispanic	0	0	1	1	2
White	52	39	173	76	340
Asian	0	0	1	1	2
Total	52	39	178	78	347

* Fourteen missing answers from respondents (n = 347)

Table 16

Respondents' Gender by Program Area

Gender	Agriculture	Marketing/ Management	Industrial Trades	Service Areas	All Respondents
Male	52	22	177	42	293
Female	0	17	4	36	57
Total	52	39	181	78	350

*Eleven missing answers from respondents (n = 350)

Table 17

Correlation for the Graduates' Ranking of Business Management Problems and Their Interest in Further Instruction

Business Management Skills	Pearson Correlation Coefficent	
1. Business Planning	.476	(.0001)
2. Managing Capital/Cash Flow	.623	(.0001)
3. Marketing Skills such as Pricing, Advertising, and Selling	.602	(.0001)
4. Accounting Tax Procedures	.650	(.0001)
5. Accounting Ledger Procedures	.599	(.0001)
6. Securing Financial Assistance	.726	(.0001)
7. Identifying Industry Trends	.558	
8. Identifying Potential Customers	.640	(.0001)
9. Motivating/Compensating Personnel	.729	(.0001)
10. Locating Professional Assistance	.671	(.0001)
11. Determining Insurance Needs	.618	(.0001)
12. Government Reporting Regulation	.648	(.0001)
13. Analyzing Competition	.614	(.0001)
14. Sales Forecasting	.688	(.0001)
15. Using Computers	.511	(.0001)

Table 18

Percentage Frequency of Graduates' Interest in Further Business Management Instruction by Program Area

Business Management Skill	Agriculture				Marketing/ Management				Industrial Trades				Service Areas			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1. Business Planning	16	34	28	22	21	32	18	29	16	41	30	13	12	34	32	22
2. Managing Capital/Cash Flow	28	33	23	16	34	16	26	24	27	32	24	17	16	32	27	25
3. Marketing Skills such as Pricing Advertising and Selling	22	33	23	22	32	19	33	16	16	33	34	17	20	27	26	27
4. Accounting Tax Procedures	20	36	24	20	21	21	29	29	19	33	28	20	12	25	33	30
5. Accounting Ledger Procedures	6	33	32	29	19	13	34	34	12	28	31	29	8	26	28	38
6. Securing Financial Assistance	20	26	32	22	8	16	21	55	16	25	29	30	7	23	27	43
7. Identifying Industry Trends	16	27	39	18	13	16	34	37	15	22	33	30	10	22	31	37
8. Identifying Potential Customers	12	10	22	56	13	26	48	13	13	23	35	29	18	22	29	31
9. Motivating/Compensating Personnel	10	22	20	48	24	24	21	31	12	26	32	30	21	20	22	37
10. Locating Professional Assistance	8	30	26	36	0	26	26	48	12	25	29	34	7	22	29	42
11. Determining Insurance Needs	8	24	36	32	8	13	34	45	11	25	32	32	9	17	33	41
12. Government Reporting Regulations	10	22	32	36	5	27	38	30	8	20	43	29	9	19	35	37
13. Analyzing Competition	4	12	20	64	14	32	27	27	8	24	37	31	7	29	26	38
14. Sales Forecasting	14	25	25	36	18	18	37	27	11	25	30	34	11	25	32	32
15. Using Computers	33	29	22	16	27	16	27	30	22	36	22	20	23	26	16	35

Scale: 1 = Very much interested
2 = Interested
3 = Somewhat interested
4 = Not interested at all

Table 19

Percentage Frequency Graduates Ranking of Business Management Problems by Program Areas

Business Management Skill	Agriculture				Marketing/ Management				Industrial Trades				Service Areas			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1. Business Planning	6	33	35	26	15	30	40	15	5	25	59	11	5	22	53	20
2. Managing Capital/Cash Flow	16	33	35	16	23	27	33	17	14	23	47	16	9	19	46	26
3. Marketing Skills such as Pricing Advertising and Selling	8	29	43	20	10	20	48	22	11	24	45	20	6	16	44	34
4. Accounting Tax Procedures	4	19	35	42	12	12	43	33	6	18	42	34	3	17	31	49
5. Accounting Ledger Procedures	4	19	35	42	12	12	43	33	6	18	42	34	3	17	31	49
6. Securing Financial Assistance	16	22	29	33	7	8	40	45	10	21	33	36	6	15	38	41
7. Identifying Industry Trends	10	21	49	20	15	12	48	25	4	13	47	36	4	9	52	35
8. Identifying Potential Customers	4	6	29	61	5	30	53	12	4	15	48	32	5	21	37	36
9. Motivating/Compensating Personnel	4	17	23	56	17	23	38	22	4	21	35	40	7	24	35	34
10. Locating Professional Assistance	6	8	55	31	0	12	38	50	3	15	40	42	4	11	30	55
11. Determining Insurance Needs	2	12	49	37	2	18	40	40	3	19	46	32	2	12	42	44
12. Government Reporting Regulations	4	12	47	37	10	28	35	27	5	12	55	28	4	15	43	38
13. Analyzing Competition	2	2	31	65	13	28	39	20	2	11	44	43	4	9	45	42
14. Sales Forecasting	10	14	45	31	15	30	43	12	4	16	46	34	4	18	42	36
15. Using Computers	8	29	35	29	18	13	23	46	6	17	37	40	4	17	29	50

Scale: 1 = Severe problem
2 = Major problem
3 = Minor problem
4 = No problem at all

Table 20

Percentage Frequency Vocational Programs Addressed Business Management Instruction by Program Areas

Business Management Skill	Agriculture				Marketing/ Management				Industrial Trades				Service Areas			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1. Business Planning	44	36	18	2	39	33	18	10	6	18	33	43	9	22	28	41
2. Managing Capital/Cash Flow	48	34	14	4	28	31	31	10	8	8	21	63	9	9	25	57
3. Marketing Skills such as Pricing Advertising and Selling	29	35	26	10	59	33	3	5	8	18	22	52	10	27	31	32
4. Accounting Tax Procedures	36	34	20	10	8	15	49	28	6	11	23	60	16	14	14	56
5. Accounting Ledger Procedures	29	45	18	8	29	21	24	26	8	13	21	58	19	11	21	47
6. Securing Financial Assistance	12	48	20	20	5	26	36	33	4	8	19	69	3	7	21	69
7. Identifying Industry Trends	18	34	26	22	32	24	31	13	10	28	28	34	15	21	30	34
8. Identifying Potential Customers	0	12	22	66	20	44	23	13	5	13	27	55	8	22	26	44
9. Motivating/Compensating Personnel	6	22	16	56	33	23	31	13	8	13	21	58	1	13	26	60
10. Locating Professional Assistance	12	45	23	20	2	26	44	28	9	21	26	44	4	18	24	52
11. Determining Insurance Needs	0	10	42	48	2	13	49	36	5	6	20	69	2	11	14	73
12. Government Reporting Regulations	6	27	31	36	2	15	39	44	5	6	18	71	7	16	24	53
13. Analyzing Competition	4	22	20	54	31	15	36	18	3	9	27	61	3	14	23	60
14. Sales Forecasting	6	35	35	24	28	36	21	15	2	11	19	68	1	18	27	54
15. Using Computers	6	24	26	44	2	18	13	67	3	7	12	78	16	5	5	74

Scale: 1 = Required and often discud
2 = Required and sometimes discussed
3 = Required by rarely discud
4 = Not required at all

Table 21

Percentage Frequency Graduates Perceived Benefit if they had additional Business Management Instruction by Program Areas

Business Management Skill	Agriculture				Marketing/ Management				Industrial Trades				Service Areas			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1. Business Planning	46	44	8	2	67	31	2	0	45	40	10	45	68	27	4	1
2. Managing Capital/Cash Flow	76	22	2	0	54	29	16	2	52	35	11	2	52	32	8	8
3. Marketing Skills such as Pricing Advertising and Selling	45	22	29	4	72	23	5	0	36	48	9	7	52	29	13	6
4. Accounting Tax Procedures	52	44	4	0	36	36	23	5	41	39	13	7	40	35	8	8
5. Accounting Ledger Procedures	45	41	8	6	47	32	13	8	38	41	14	7	52	34	8	6
6. Securing Financial Assistance	49	35	14	2	28	46	10	16	30	39	22	9	32	45	12	11
7. Identifying Industry Trends	18	49	25	8	32	50	16	2	22	56	18	4	31	40	15	14
8. Identifying Potential Customers	4	24	31	41	52	41	5	2	27	43	21	9	41	42	12	5
9. Motivating/Compensating Personnel	6	40	22	32	56	31	13	0	30	40	21	9	30	49	14	8
10. Locating Professional Assistance	16	57	21	6	15	49	34	5	26	47	22	5	24	58	10	8
11. Determining Insurance Needs	12	47	23	18	23	38	26	13	23	45	22	10	23	44	25	8
12. Government Reporting Regulations	19	37	23	21	23	49	18	10	19	42	25	14	39	44	8	9
13. Analyzing Competition	10	28	22	40	34	55	11	0	19	45	25	11	29	40	20	11
14. Sales Forecasting	21	49	18	12	29	50	19	2	16	40	29	15	27	38	21	14
15. Using Computers	47	27	18	2	26	45	8	21	23	45	17	15	27	37	16	20

Scale: 1 = Very much benefit
2 = Some benefit
3 = Very little benefit
4 = No benefit at all

Table 22

Comparison of Technical Institute
Entrepreneurship Assistance to Other Sources of Assistance

Source of Assistance	To Start Business	To Maintain Business	Ratings of Importance	Satisfaction Level
· Friends, family or relatives	62%	52%	1.5	1.4
· Bank or credit union	60%	61%	1.3	1.6
· Accountant	46%	62%	1.4	1.5
· Lawyer	36%	40%	1.6	1.7
· Business associates	32%	37%	1.6	1.6
· **Vocational instructor**	29%	25%	1.7	1.6
· **Vocational program business management skills**	17%	14%	1.6	1.7
· **Technical Institute Small Business Management program**	9%	12%	1.4	1.7
· Chamber of Commerce	9%	16%	2.4	2.4
· Trade association	8%	17%	1.8	1.8
· Private business consultant	8%	10%	1.5	1.4
· Small Business Administration (SBA) loan program	6%	4%	1.6	2.1
· Small Business Developmen Center (SBDC)	5%	7%	2.0	2.3
· Service Corps of Retired Executives (SCORE)	4%	6%	2.6	2.6
· Any other types of assistance	7%	5%	1.3	1.4

Scales: 1 = Very important
2 = Important
3 = Somewhat important
4 = Not important

1 = Very satisfied
2 = Some satisfaction
3 = Little satisfaction
4 = No satisfaction

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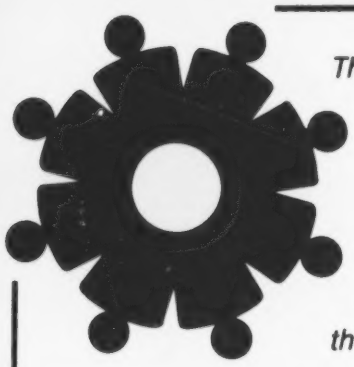

The logo of the State Council on Vocational Technical Education is an abstract representation of the citizen-councilors assembled at a round table. Designed by a commercial art student at Alexandria Technical Institute, the design was selected in 1982 from 69 entries submitted by vocational students in Minnesota's high schools, secondary cooperative centers, and technical institutes. The Council made its selection on the basis of a recommendation by a panel of representatives from the graphic arts, public relations, and media industries in Minnesota.

The State Council on Vocational Technical Education is designed to further public-private collaboration for the advancement of quality vocational programs responsive to labor market needs. Established in 1969 and designated as a state agency in 1985, the Council is composed of 13 members appointed by the Governor. Seven members represent the private sector interests of agriculture, business, industry, and labor. Six of the members represent vocational technical education institutions, career guidance and counseling organizations, special education, and targeted populations.

The Council advises the Governor, the State Board of Vocational Technical Education, the State Board of Education, the Governor's Job Training Council, the business community, the general public, and the U.S. Secretaries of Education and Labor. The Council

(a) advises on development of the annual state vocational plan;
(b) provides consultation on the establishment of program evaluation criteria and state technical committees;
(c) analyzes the spending distribution and the availability of vocational programs, services, and activities;
(d) reports on the extent to which equity is provided targeted populations;
(e) recommends procedures to enhance public participation in vocational technical education;
(f) recommends improvements that emphasize business and labor concerns;
(g) evaluates the delivery systems assisted under the Carl D. Perkins Vocational Education Act and the Job Training Partnership Act (JTPA); and
(h) advises on policies that the state should pursue to strengthen vocational technical education, as well as initiatives that the private sector could undertake to enhance program modernization.

To enhance effectiveness in gathering information, the Council holds at least one town meeting each year outside the Twin Cities metropolitan area at which the public is encouraged to express its concern about vocational technical education in Minnesota. To enhance its effectiveness in providing information, the Council publishes a quarterly newsletter, an annual directory, and a biennial report. These publications as well as project and activity reports are available to the public.

Information on the date, time, and location of Council meetings and other activities is available by calling the Council Office at 612/296-4202.

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